Stanford

Demir Akin, D.V.M., Ph.D.

Deputy Director, Center for Cancer Nanotechnology Excellence, Rad/Canary Center at Stanford for Cancer Early Detection

Bio

CURRENT ROLE AT STANFORD

Deputy Director, Center for Cancer Nanotechnology Excellence for Translational Diagnostics

EDUCATION AND CERTIFICATIONS

- Post Doctoral, Purdue University , Diagnostic Microbiology/Bioinformatics (2000)
- Ph.D., Purdue University , Pathobiology, Molecular Virology (1998)
- M.S., College of Veterinary Medicine, Mississippi State University , Clinical Diagnostics, Microbiology, Virology (1992)
- D.V.M., Ankara University , Veterinary Medicine (1988)

PROJECTS

- Artificial Intelligence (AI) and Machine Learning (ML)-Assisted Predictive Health Monitoring and Digital Health - Stanford University, Department of Radiology and Center for Cancer Nanotechnology Excellence (4/2018 - present)
- Nanomedicine, Diagnostic and Therapeutic Devices for Cancer and Infectious Diseases (2002 - present)
- Wearable, Implantable, Inhalable, Swallowable Medical Monitoring/Theranostic Devices (2013 - present)
- Precision Medicine, Digital Markers, Health-AI, Computational/In Silico Biology (2013 - present)

LINKS

- Nanomedicine Site: https://web.stanford.edu/~dakin/publications.html

Professional

PROFESSIONAL INTERESTS

RESEARCH INTERESTS

* Biological Engineering and Micro/Nanomedicine *

- Chip-based biomedical micro and nano-integrated systems for sensing, diagnosis, and therapy; micro and nano-scale biosensors for cells, proteins, DNA

- Biomimetically Inspired Engineered Systems

- Biosensors, Intelligent Medical Devices utilizing machine learning, artificial intelligence and expert systems to improve functionality and performance

- Polymer-based microfludic and silicon micromachined chips for infectious agent detection and re-emerging diseases

- Single molecule imaging and image analysis to study cell:pathogen interactions, molecular beacons for intracellular gene expression analysis, Atomic Force Microscopy, study of viral capsid biomechanics and assembly

- Digital Health, Precision Medicine, Precision Health, Wearable Diagnostics, Implantables, Machine Learning and Precictives

- Microbial and cellular engineering for Cancer applications

- Stimuli responsive polymers such as hydrogels for development of micro/nano-devices for drug delivery and biomedical sensing applications.

- Wireless Passive Theranostic Devices for medical monitoring and intervention

- Robotics

* Genomics/Systems Biology *

- Reverse Engineering of Signal Transduction Networks and Molecular Pathways: SilicoCyte, Virtual Cellular communities

- Applications of genomics and bioinformatics in molecular profiling of cancer. Identification of predictive tumor markers and anti-cancer small molecule drug leads.

- Artificial intelligence-based collaborative software development for Systems Biology: Fuzzy logic, Neural Nets, Genetic Algorithms, Expert Systems, Pattern Finding, Data Warehousing

* Gene Therapy/Microbiology/Virology *

- Microbial and cellular engineering

- Experimental Therapeutics and Diagnostics: Endogenously (Self)-Regulated Gene Therapy; Cellular Re-programming, Therapeutic Transgenics, Correction of genetic defects by via gene replacement

- Molecular basis of disease resistance , susceptibility and coordinated gene regulation. Enhancement of disease resistance via manipulation of host immune components, DNA vaccines and therapeutic modulation of signal transduction pathways by small molecule drugs

- Prediction and computational modeling of genome evolution of RNA viruses (Coronaviridae, influenza). Forced evolution of viruses and emergence of new strains or quasi-species formation

- MEMS and Nano-based Biosensors for detection and continious monitoring of airborne biothreat agents

WORK EXPERIENCE

- Deputy Director, Center for Cancer Nanotechnology Excellence for Translational Diagnostics (CCNE-TD) - Stanford Univeristy, School of Medicine (1/1/2016 - present)
- Deputy Director, Center for Cancer Nanotechnology Excellence and Translation (CCNE-T) - Stanford University (9/1/2010)
- Deputy Director, Center for Cancer Nanotechnology Excellence focused on Therapy Response (CCNE-TR) - Stanford University (5/1/2008)
- Assistant Professor (Nanomedicine Research) - Purdue University (4/1/2005 - 5/1/2008)
- Manager, BioMEMS and BioNano Laboratories, Birck Nanotechnology Center - Purdue University (1/1/2005 - 5/1/2008)
- Senior Research Scientist, School of Electrical and Computer Engineering - Purdue University (1/1/2002 - 12/30/2006)
- Manager, BioMEMS Laboratory, School of Electrical and Computer Engineering - Purdue University (1/1/2002 - 12/30/2006)
- Research Scientist-Genomics, Applied Intelligent Systems Lab, School of Nuclear Engineering - Purdue University (1/1/2000 - 12/30/2001)
- Research Associate, Indiana State ADDL - Purdue University (1/1/1998 - 12/30/2000)
- Research Assistant (Molecular Virology), Department of Comparative Pathobiology - Purdue University (1/1/1993 - 7/30/1998)

SKILLS AND EXPERTISE

Administrative Operations

- Budget Planning
- Change Management
- Grants
- Leadership
- Oracle Financials Systems

- Organization/Prioritization
- PeopleSoft
- Process Improvement
- Project Management
- Public Speaking
- Purchasing
- Strategic Planning
- Task Management
- Team Building

Information Technology

- Academic Technology
- Artificial Intelligence (AI)
- Business Intelligence (BI)
- Collaboration
- Data Governance
- Data Management
- Emerging Technologies
- Facilities Management/Planning
- Health Care
- Lab Technologies
- Leadership
- Portfolio Management
- Process Improvement
- Project Management
- Reporting
- Research Administration
- Risk Management
- Safety

Publications

PUBLICATIONS

- **Integrated "lab-on-a-chip" microfluidic systems for isolation, enrichment, and analysis of cancer biomarkers.** *Lab on a chip*
  Surappa, S., Multani, P., Parlatan, U., Sinawang, P. D., Kaifi, J., Akin, D., Demirci, U.
  2023
- **Systematic Analysis of Tissue-Derived and Biofluid Extracellular Vesicle miRNAs Associated with Prostate Cancer.** *Advanced biology*
  Larson, J., Ozen, M. O., Kohli, M., Akin, D., Demirci, U.
  2023: e2200327
- **Methods to Evaluate Changes in Mitochondrial Structure and Function in Cancer.** *Cancers*
  Rickard, B. P., Overchuk, M., Chappell, V. A., Kemal Ruhi, M., Sinawang, P. D., Nguyen Hoang, T. T., Akin, D., Demirci, U., Franco, W., Fenton, S. E., Santos, J. H., Rizvi, I.
  2023; 15 (9)

- **Programmable Shape Morphing Metasponge** *ADVANCED INTELLIGENT SYSTEMS*
  Soto, F., Tsui, A., Surappa, S., Ahmed, R., Wang, J., Kilinc, U., Akin, D., Demirci, U.
  2023
- **Review of HIV Self Testing Technologies and Promising Approaches for the Next Generation.** *Biosensors*
  Bacon, A., Wang, W., Lee, H., Umrao, S., Sinawang, P. D., Akin, D., Khemtonglang, K., Tan, A., Hirshfield, S., Demirci, U., Wang, X., Cunningham, B. T.
  2023; 13 (2)
- **Label-Free Identification of Exosomes using Raman Spectroscopy and Machine Learning.** *Small (Weinheim an der Bergstrasse, Germany)*
  Parlatan, U., Ozen, M. O., Kecoglu, I., Koyuncu, B., Torun, H., Khalafkhany, D., Loc, I., Ogut, M. G., Inci, F., Akin, D., Solaroglu, I., Ozoren, N., Unlu, et al
  2023: e2205519
- **Large-Scale Functionalized Metasurface-Based SARS-CoV-2 Detection and Quantification.** *ACS nano*
  Ahmed, R., Guimaraes, C. F., Wang, J., Soto, F., Karim, A. H., Zhang, Z., Reis, R. L., Akin, D., Paulmurugan, R., Demirci, U.
  2022
- **Automated Recognition of Plasmodium falciparum Parasites from Portable Blood Levitation Imaging.** *Advanced science (Weinheim, Baden-Wurttemberg, Germany)*
  Deshmukh, S. S., Byaruhanga, O., Tumwebaze, P., Akin, D., Greenhouse, B., Egan, E. S., Demirci, U.
  2022: e2105396
- **Engineered living bioassemblies for biomedical and functional material applications.** *Current opinion in biotechnology*
  Guimaraes, C. F., Soto, F., Wang, J., Akin, D., Reis, R. L., Demirci, U.
  2022; 77: 102756
- **Volbots: Volvox Microalgae-Based Robots for Multimode Precision Imaging and Therapy** *ADVANCED FUNCTIONAL MATERIALS*
  Wang, J., Soto, F., Liu, S., Yin, Q., Purcell, E., Zeng, Y., Hsu, E., Akin, D., Sinclair, B., Stoyanova, T., Demirci, U.
  2022
- **Acoustic Fabrication of Living Cardiomyocyte-based Hybrid Biorobots.** *ACS nano*
  Wang, J., Soto, F., Ma, P., Ahmed, R., Yang, H., Chen, S., Wang, J., Liu, C., Akin, D., Fu, K., Cao, X., Chen, P., Hsu, et al
  2022
- **Robotic Pill for Biomarker and Fluid Sampling in the Gastrointestinal Tract** *ADVANCED INTELLIGENT SYSTEMS*
  Soto, F., Purcell, E., Ozen, M., Sinawang, P., Wang, J., Akin, D., Demirci, U.
  2022
- **Advanced Point-of-Care Testing Technologies for Human Acute Respiratory Virus Detection.** *Advanced materials (Deerfield Beach, Fla.)*
  Zhang, Z., Ma, P., Ahmed, R., Wang, J., Akin, D., Soto, F., Liu, B., Li, P., Demirci, U.
  2021: e2103646
- **Intracellular detection and communication of a wireless chip in cell.** *Scientific reports*
  Yang, M. X., Hu, X., Akin, D., Poon, A., Wong, H. P.
  2021; 11 (1): 5967
- **Progress and challenges in biomarker enrichment for cancer early detection** *Progress in Biomedical Engineering*
  Sinawang, P., Soto, F., Ozen, M. O., Akin, D., Demirci, U.
  2021; 3 (4)
- **Nanomedicine for Spontaneous Brain Tumors: A Companion Clinical Trial** *ACS NANO*
  Arami, H., Patel, C. B., Madsen, S. J., Dickinson, P. J., Davis, R. M., Zeng, Y., Sturges, B. K., Woolard, K. D., Habte, F. G., Akin, D., Sinclair, R., Gambhir, S. S.
  2019; 13 (3): 2858–69
- **Nanomedicine for Spontaneous Brain Tumors: A Companion Clinical Trial.** *ACS nano*
  Arami, H., Patel, C. B., Madsen, S. J., Dickinson, P. J., Davis, R. M., Zeng, Y., Sturges, B. K., Woolard, K. D., Habte, F. G., Akin, D., Sinclair, R., Gambhir, S. S.
  2019
- **Rapid and specific labeling of single live Mycobacterium tuberculosis with a dual-targeting fluorogenic probe** *SCIENCE TRANSLATIONAL MEDICINE*
  Cheng, Y., Xie, J., Lee, K., Gaur, R. L., Song, A., Dai, T., Ren, H., Wu, J., Sun, Z., Banaei, N., Akin, D., Rao, J.
  2018; 10 (454)

- **Internalization of subcellular-scale microfabricated chips by healthy and cancer cells** *PLOS ONE*
  Parizi, K. B., Akin, D., Wong, H.
  2018; 13 (3)
- **Internalization of subcellular-scale microfabricated chips by healthy and cancer cells.** *PloS one*
  Parizi, K. B., Akin, D., Wong, H. P.
  2018; 13 (3): e0194712
- **Micrometer-scale magnetic-resonance-coupled radio-frequency identification and transceivers for wireless sensors in cells** *Physical Review Applied*
  Hu, X., Aggarwal, K., Yang, M., Parizi, K., Xu, X., Akin, D., Poon, A., Wong, H.
  2017
- **PCR Amplification and Sequencing Analysis of Full-Length Turkey Coronavirus Spike Gene** *ANIMAL CORONAVIRUSES*
  Chen, Y., Akin, A., Loa, C., Ababneh, M., Cao, J., Chen, W., Wu, C., Lin, T., Wang, L.
  2016: 151-160
- **Multitarget, quantitative nanoplasmonic electrical field-enhanced resonating device ((NERD)-R-2) for diagnostics** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Inci, F., Filippini, C., Baday, M., Ozen, M. O., Calamak, S., Durmus, N. G., Wang, S., Hanhauser, E., Hobbs, K. S., Juillard, F., Kuang, P. P., Vetter, M. L., Carocci, et al
  2015; 112 (32): E4354-E4363
- **Multitarget, quantitative nanoplasmonic electrical field-enhanced resonating device (NE2RD) for diagnostics.** *Proceedings of the National Academy of Sciences of the United States of America*
  Inci, F., Filippini, C., Baday, M., Ozen, M. O., Calamak, S., Durmus, N. G., Wang, S., Hanhauser, E., Hobbs, K. S., Juillard, F., Kuang, P. P., Vetter, M. L., Carocci, et al
  2015; 112 (32): E4354-63
- **Biotargeted nanomedicines for cancer: six tenets before you begin** *NANOMEDICINE*
  Goldberg, M. S., Hook, S. S., Wang, A. Z., Bulte, J. W., Patri, A. K., Uckun, F. M., Cryns, V. L., Hanes, J., Akin, D., Hall, J. B., Gharkholo, N., Mumper, R. J.
  2013; 8 (2): 299-308
- **Fluorescent Magnetic Nanoparticles for Magnetically Enhanced Cancer Imaging and Targeting in Living Subjects** *ACS NANO*
  Fu, A., Wilson, R. J., Smith, B. R., Mullenix, J., Earhart, C., Akin, D., Guccione, S., Wang, S. X., Gambhir, S. S.
  2012; 6 (8): 6862-6869
- **Theranostics.** *NCI Cancer Nanotechnology Plan (2010-2020)*
  Akin D., S.S. Gambhir
  2010
- **Nanotechnology Research Directions for Societal Needs in 2020.** *Nanobiosystems, Medicine and Health. M.C. Roco, C.A. Mirkin and M.C. Hersham eds.*
  Mirkin C.A., A. Nel, C. S. Thaxton, B.A. Baird, C. Batt, D. Grainger, S.S.Gambhir, D. Akin, O. Zhou, J.F. Stoddart, T.J. Meade, P. Grodzinski, D. Farrell, H.F. Tibbals, J. De Simone
  2010; NSF
- **Capture and alignment of phi29 viral particles in sub-40 nanometer porous alumina membranes** *BIOMEDICAL MICRODEVICES*
  Moon, J., Akin, D., Xuan, Y., Ye, P. D., Guo, P., Bashir, R.
  2009; 11 (1): 135-142
- **Dielectrophoresis-based cell manipulation using electrodes on a reusable printed circuit board** *LAB ON A CHIP*
  Park, K., Suk, H., Akin, D., Bashir, R.
  2009; 9 (15): 2224-2229
- **Real-time detection of airborne viruses on a mass-sensitive device** *APPLIED PHYSICS LETTERS*
  Lee, J., Jang, J., Akin, D., Savran, C. A., Bashir, R.
  2008; 93 (1)
- **Effects of inlet/outlet configurations on the electrostatic capture of airborne nanoparticles and viruses** *MEASUREMENT SCIENCE & TECHNOLOGY*
  Jang, J., Akin, D., Bashir, R.
  2008; 19 (6)

- **Real-time detection of air-borne viruses on a mass-sensitive device** *Applied Physics Letters*
  Lee, J., J. Jang, D. Akin, C.A. Savran, R. Bashir
  2008; 93 (1): 13901

- **PCR-based detection in a micro-fabricated platform** *LAB ON A CHIP*
  Bhattacharya, S., Salamat, S., Morisette, D., Banada, P., Akin, D., Liu, Y., Bhunia, A. K., Ladisch, M., Bashir, R.
  2008; 8 (7): 1130-1136

- **Effects of inlet/outlet configurations on the electrostatic capture of airborne nanoparticles and viruses** *Measurement Science and Technology*
  Jang J., D. Akin, R. Bashir
  2008; 19: 065204-065212

- **Ultrananocrystalline diamond film as an optimal cell interface for biomedical applications** *BIOMEDICAL MICRODEVICES*
  Bajaj, P., Akin, D., Gupta, A., Sherman, D., Shi, B., Auciello, O., Bashir, R.
  2007; 9 (6): 787-794

- **A cellular Trojan horse for delivery of therapeutic nanoparticles into tumors** *NANO LETTERS*
  Choi, M., Stanton-Maxey, K. J., Stanley, J. K., Levin, C. S., Bardhan, R., Akin, D., Badve, S., Sturgis, J., Robinson, J. P., Bashir, R., Halas, N. J., Clare, S. E.
  2007; 7 (12): 3759-3765

- **Electrical capture and lysis of vaccinia virus particles using silicon nano-scale probe array** *BIOMEDICAL MICRODEVICES*
  Park, K., Akin, D., Bashir, R.
  2007; 9 (6): 877-883

- **Bacteria-mediated delivery of nanoparticles and cargo into cells** *NATURE NANOTECHNOLOGY*
  Akin, D., Sturgis, J., Ragheb, K., Sherman, D., Burkholder, K., Robinson, J. P., Bhunia, A. K., Mohammed, S., Bashir, R.
  2007; 2 (7): 441-449

- **Solid-state nanopore channels with DNA selectivity** *NATURE NANOTECHNOLOGY*
  Iqbal, S. M., Akin, D., Bashir, R.
  2007; 2 (4): 243-248

- **Biomems and nanotechnology-based approaches for rapid detection of biological entities** *JOURNAL OF RAPID METHODS AND AUTOMATION IN MICROBIOLOGY*
  Bhattacharya, S., Jang, J., Yang, L., Akin, D., Bashir, R.
  2007; 15 (1): 1-32

- **Capture of airborne nanoparticles in swirling flows using non-uniform electrostatic fields for bio-sensor applications** *SENSORS AND ACTUATORS B-CHEMICAL*
  Jang, J., Akin, D., Lim, K. S., Broyles, S., Ladisch, M. R., Bashira, R.
  2007; 121 (2): 560-566

- **Nanotechnology in Biology and Medicine: Methods, Devices, and Applications. Edited by Tuan Vo-Dinh, Book Review.** *ChemMedChem*
  Akin D.
  2007; 2 (10): 1534-1535

- **Biomems and Nanotechnology based approaches for rapid detection of biological entities** *J. Rapid Methods & Automation in Microbiology*
  Bhattacharya, S., J. Jang, L. Yang, D. Akin, R. Bashir
  2007; 15: 1-32

- **Capture of airborne nanoparticles in swirling flows using non-uniform electrostatic fields for bio-sensor applications** *Sensors and Actuators B*
  Jang J., D. Akin, K.S. Lim, S. Broyles, M.R. Ladisch, R. Bashir
  2007; 121: 560-566

- **Anomalous resonance in a nanomechanical biosensor** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
  Gupta, A. K., Nair, P. R., Akin, D., Ladisch, M. R., Broyles, S., Alam, M. A., Bashir, R.
  2006; 103 (36): 13362-13367

- **Characterization of vaccinia virus particles using microscale silicon cantilever resonators and atomic force microscopy** *SENSORS AND ACTUATORS B-CHEMICAL*

Johnson, L., Gupta, A. T., Ghafoor, A., Akin, D., Bashir, R.
2006; 115 (1): 189-197

- **Characterization of vaccinia virus particles using microscale silicon cantilever resonators and atomic force microscopy** *Sensors and Actuators B*
  Johnson, L., A. Gupta, D. Akin, A. Ghafoor, R. Bashir
  2006; 115: 189-197
- **Spore detection in air and fluid using micro-cantilever sensors**
  Davila, A. P., Gupta, A., Walter, T., Akin, D., Aronson, A., Bashir, R., Furuya, Y., Su, J., Takeuchi, Varadan, V. K., Ulicny, J.
  MATERIALS RESEARCH SOC.2006: 197-+
- **Characterization and modeling of a microfluidic dielectrophoresis filter for biological species** *JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*
  Li, H. B., Zheng, Y. N., Akin, D., Bashir, R.
  2005; 14 (1): 103-112
- **Bacterial delivery of smart nanoparticles-loaded with therapeutic molecules into cancer cells** *Nanomedicine*
  Akin D., K. Ragheb, J. Sturgis, A.K. Bhunia, J.P. Robinson, R. Bashir
  2005; 1: 250
- **Mechanical effects of attaching protein layers on nanoscale-thick cantilever beams for resonant detection of virus particles**
  Gupta, A., Akin, D., Bashir, R., IEEE
  IEEE.2005: 746-749
- **Dielectrophoresis and antibody mediated selective capture of microorganisms in micro-fluidic biochips**
  Li, H., Yang, L., Akin, D., Geng, T., Bhunia, A., Huang, T. T., Ladisch, M., Bashir, R., IEEE
  IEEE.2005: 1700-1703
- **Delocalization of vaccinia virus components observed by Atomic Force and Fluorescence Microscopy** *NanoBiotechnology*
  Ghafoor, A*., D. Akin*, R. Bashir
  2005; 4: 337-346
- **Characterization and modeling of a microfluidic dielectrophoresis filter for biological species** *J. Microelectromechanical Systems*
  Li, H., Y. Zheng, D. Akin, R. Bashir
  2005; 143: 103-112
- **Detection of bacterial cells and antibodies using surface micromachined thin silicon cantilever resonators** *JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B*
  Gupta, A., Akin, D., Bashir, R.
  2004; 22 (6): 2785-2791
- **Detection of labeled microbial cells using microfluidic biosensor**
  Huang, T., Taylor, D., Sedlak, M., Gregori, G., Akin, D., Bashir, R., Ladisch, M. R., Robinson, P.
  AMER CHEMICAL SOC.2004: U123
- **Single virus particle mass detection using microresonators with nanoscale thickness** *APPLIED PHYSICS LETTERS*
  Gupta, A., Akin, D., Bashir, R.
  2004; 84 (11): 1976-1978
- **Real-time virus trapping and fluorescent imaging in microfluidic devices** *NANO LETTERS*
  Akin, D., Li, H. B., Bashir, R.
  2004; 4 (2): 257-259
- **Single virus particle mass detection using microresonators with nanoscale thickness** *Applied Physics Letters*
  Gupta A., D. Akin, R. Bashir
  2004; 84: 1976-1978
- **BioMEMS to bionanotechnology: state-of-the-art in integrated biochips and future prospects**
  Gupta, A., Li, H., Gomez, R., Chang, W. J., Koo, Y. M., Chang, H., Andreadakis, G., Akin, D., Bashir, R., Islam, M. S., Dutta, A. K.
  SPIE-INT SOC OPTICAL ENGINEERING.2004: 340-353

- **Real-time virus trapping and fluorescent imaging in micro-fluidic devices** *Nano Letters*
  Demir Akin, H. Li, R. Bashir
  2004; 4: 257-259
- **Detection of bacterial cells and antibodies using surface micromachined thin silicon cantilever resonators.** *J. Vacuum Sci. & Tech. B: Microelectronics and Nanometer Structures*
  Gupta A., D. Akin, R. Bashir
  2004; 22: 2785-2791
- **Poly(dimethylsiloxane) (PDMS) and silicon hybrid biochip for bacterial culture** *BIOMEDICAL MICRODEVICES*
  Chang, W. J., Akin, D., Sedlak, M., Ladisch, M. R., Bashir, R.
  2003; 5 (4): 281-290
- **Integrated nanoscale silicon sensors using top-down fabrication** *APPLIED PHYSICS LETTERS*
  Elibol, O. H., Morisette, D., Akin, D., Denton, J. P., Bashir, R.
  2003; 83 (22): 4613-4615
- **Microfiber assisted fabrication of microfluidic channels using poly(dimethylsiloxane)** *AICHE JOURNAL*
  Huang, T. T., Chang, W. J., Akin, D., Gomez, R., Bashir, R., Mosier, N., Ladisch, M. R.
  2003; 49 (11): 2984-2987
- **Investigation of fluid absorption in hybrid poly(dimethylsiloxane) (PDMS)/silicon biochips for long-term cell-incubation applications.**
  Chang, W. J., Gomez, R., Li, H. B., Akin, D., Bashir, R.
  AMER CHEMICAL SOC.2003: U364
- **Micro-assembly of functionalized particulate monolayer on C-18-derivatized SiO2 surfaces** *BIOTECHNOLOGY AND BIOENGINEERING*
  Huang, T. T., Geng, T., Akin, D., Chang, W. J., Sturgis, J., Bashir, R., Bhunia, A. K., Robinson, J. P., Ladisch, M. R.
  2003; 83 (4): 416-427
- **Bio-mediated assembly of functionalized microbeads for capture of microorganisms.**
  Huang, T. T., Geng, T., Akin, D., Chang, W. J., Sturgis, J., Bashir, R., Bhunia, A. K., Robinson, J. P., Ladisch, M. R.
  AMER CHEMICAL SOC.2003: U198
- **Integrated nanoscale silicon sensors using top-down fabrication** *Applied Physics Letters*
  Elibol O.H., D. Morisette, D. Akin, J. P. Denton, R. Bashir
  2003; 83: 4613-4615
- **Poly(dimethylsiloxane) (PDMS) and silicon hybrid biochip for bacterial culture** *Biomedical Microdevices*
  Chang W.J., D. Akin, R. Bashir
  2003; 5: 281-290
- **Resonant mass biosensor for ultrasensitive detection of bacterial cells** *Microfluidics, BioMEMS, and Medical Microsystems, Holger Becker, Peter Woias, Editors*
  Gupta A., D. Akin, R. Bashir
  2003; 4982: 21-27
- **Interfacing micro/nano technology with life-sciences for detection of cells and microorganisms**
  Bashir, R., Gomez, R., Li, H., Akin, D., Gupta, A., IEEE
  IEEE.2003: 157-160
- **From BioMEMS to bionanotechnology: Integrated BioChips for the detection of cells and microorganisms**
  Bashir, R., Akin, D., Gomez, R., Li, H., Chang, W. J., Gupta, A., Ozkan, C. S., Santini, J. T., Gao, H., Bao, G.
  MATERIALS RESEARCH SOCIETY.2003: 117-124
- **A chemical sensor using neurons and a 3-D micro-fluidic chip**
  McNally, H., Kufluoglu, H., Akin, D., Grimmer, J., Walker, J., Shi, R., Borgens, R., Bashir, R., LaVan, D. A., Ayon, A. A., Buchheit, T. E., Madou, M. J.
  MATERIALS RESEARCH SOCIETY.2003: 247-252
- **Resonant mass biosensor for ultrasensitive detection of bacterial cells**
  Gupta, A., Akin, D., Bashir, R., Becker, H., Woias, P.

SPIE-INT SOC OPTICAL ENGINEERING.2003: 21-27